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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,493	06/29/2001	Alan F. Graves	08-891912US1	6350

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Gowling Lafleur Henderson LLP
160 Elgin Street
Suite 2600
Ottawa, ON K1P 1C3
CANADA

EXAMINER

BELLO, AGUSTIN

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/893,493

Applicant(s)

GRAVES ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/5/07 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-20, and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hugenberg (U.S. Patent No. 6,714,545) in view of Hung (U.S. Patent No. 6,583,901).

Regarding claims 1, 16-20, 22-23, Hugenberg teaches a plurality of access multiplexers (reference numeral 28 in Figure 2), each access multiplexer operable to provide multiplexing of data packets from a plurality of end-users onto a wavelength according to a DWDM plan (column 7 lines 38-41); a photonic switch (reference numeral 40 in Figure 2), coupled to the access multiplexers via fiber optic cable (reference numeral 38 in Figure 2) for carrying the wavelengths, being all-optical (i.e. the input and output of the element 40 in Figure 2 are optical fiber) and operable to switch the wavelengths into dense wavelength division multiplexed (DWDM) signal for transmission (column 7 lines 38-41); and a core node (reference numeral 14

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in Figure 2), coupled to the photonic switch (reference numeral 40 in Figure 2) via a fiber optic cable (reference numeral 24 in Figure 2) for carrying the DWDM signal, and operable to route the data packets within the communications network or out to a long haul network. Hugenberg differs from the claimed invention in that Hugenberg fails to specifically teach what the applicant refers to as an S-DWDM wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network. However, Hung, in the same field of optical communication systems, teaches that providing a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network is well known in the art (see Figures 20-23, column 7 line 64 – column 8 line 2, column 9 lines 2-6, column 17 lines 45-49, 55-56). One skilled in the art would have been motivated to employ a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network in the device of Hugenberg in order to avoid exhausting the bandwidth of the fiber (column 2 lines 47-50 of Hung). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network as taught by Hung in the device of Hugenberg.

Regarding claims 2, 4, the combination of Hugenberg and Hung teaches that the photonic switch includes a multiwavelength source (reference numeral 1362 in Figure 2 of Hung) for

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generating DWDM quality wavelengths for supplying the access multiplexers with unmodulated wavelengths upon which to multiplex data packets.

Regarding claims 3, 24, Hugenberg teaches that the core node includes a photonic switch and a packet switch (reference numeral 32 in Figure 2).

Regarding claim 5, Hugenberg teaches that the data packets are Ethernet packets (e.g. Ethernet throughout and as evidenced by Ethernet switch reference numeral 42 in Figure 2).

Regarding claim 6, Hugenberg teaches that a portion of the data packets are transmitted from a particular end-user to a particular access multiplexer over a local loop, connecting the particular end-user to the particular access multiplexer, using a digital subscriber line DSL protocol (column 3 lines 32-33).

Regarding claim 7, Hugenberg teaches that the type of DSL is VDSL (column 3 lines 32-33).

Regarding claims 8, 9, the photonic switches and core node of Hugenberg are clearly capable of switching at the wavelength, group of wavelength, and fiber level.

Regarding claim 10, the core node of Hugenberg is clearly capable of switching data packets based on a service to which the data packet pertains.

Regarding claim 11, Hugenberg teaches a plurality of photonic switches, each of the photonic switches connected to at least one other photonic switch and the core node (inherent in a larger overall system of Hugenberg).

Regarding claim 12, Hugenberg teaches a plurality of core nodes, each of core nodes connected to at least one other core node (inherent in a larger overall system of Hugenberg).

Regarding claims 13-15, 25 the combination of Hugenberg and Hung differs from the claimed invention in that it fails to specifically teach that the core node includes a wavelength converter for converting one wavelength to another wavelength to provide an end-to-end photonic connection across the network. However, the use of wavelength converters in optical communication networks is well known in the art. One skilled in the art would have been motivated to employ wavelength converters in order to allow interconnections between networks. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ wavelength converts in the combination of Hugenberg and Hung.

Regarding claim 21, Hugenberg differs from the claimed invention in that Hugenberg fails to specifically teach that N is 40 and s is 5. However, being that the system taught by Hugenberg complies with DWDM standards, it is clear that one skilled in the art could have selected any number of channels and an associated channel spacing including a configuration of 40 channels with a spacing of 5.

Regarding claim 26, Hugenberg teaches that the photonic switch (reference numeral 40 in Figure 2) includes a first plurality of input ports and a second plurality of output ports, with the first being greater than the second, whereby the photonic switch effects concentration of the wavelengths from the access multiplexers (as seen in Figure 2).

Response to Arguments

4. Applicant's arguments filed 2/5/07 have been fully considered but they are not persuasive. As noted in the rejection above, the element 40 relied upon to teach the applicant's claim to an all-optical photonic switch is met by Hugenburg in that both the input and the output

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of the switch are all-optical. Furthermore, Hugenburg is silent as to any O-E-O conversion occurring within element 40.

As to applicant's argument's regarding the ability of the combination of references to produce a DWDM signal, the examiner maintains that the combination of references would indeed be capable of producing a DWDM signal as claimed. The examiner believes this is true since Hugenburg's USAM works to convert data packets received from a plurality of users into optical signals, then seeks to optically multiplex those signals so that they are supportive of a DWDM multiplexing scheme. Therefore, it stands to argue that the conversion means within Hugenburg's USAM in general produces a wavelength that is at least capable of being interleaved into the frequency constraints of a DWDM wavelength plan of the core network. Admittedly, Hugenburg fails to spell this out. However, Hung in no uncertain terms, provides conversion means capable of producing relatively coarsely spaced wavelengths, but are generated with optical precision in terms of carrier frequency so that they can map directly to tight DWDM frequency constraints (column 17 line 50 - column 18 line 10 of Hung). Given the above, the examiner maintains that the combination of Hugenburg's USAM and Hung's precise optical sources obviate the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Agustin Bello
Primary Examiner
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AB